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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/647,471

08/26/2003

Gregory Zyzdryn

1823.0570000

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09/24/2007

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EXAMINER

LIEW, ALEX KOK SOON

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

09/24/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/647,471

Applicant(s)

ZYZDRYN, GREGORY

Examiner

Alex Liew

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 August 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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This office action is in response to the RCE filed on August 16, 2007.

### **Response to Applicant's Arguments**

On pages 13 and 14, the applicant stated:

For example, the blending depth (the size of the blending region) can be calculated to minimize final "stitched" image distortion, as discussed in the instant application. Also, for example, the blending depth can be much smaller than the "slice" overlapping region. Neither Martinez nor O'Gorman, alone or in combination, teaches or suggests this distinguishing feature. Martinez has no teaching or suggestion at all for this distinguishing feature. Even assuming O'Gorman is the closest reference with regard to blending, O'Gorman does not calculate a blending depth and has no control over the size of the blending region, as recited in the independent claims. Rather, the size of the blending region in O'Gorman appears to be determined by the overlap itself.

The examiner disagrees. However, Russo (US pat no 7,197,168) better disclose the invention of claim 1. Russo discloses a method for capture of a fingerprint image as a finger is sweep across a platen surface, comprises the steps of:

capturing a plurality of fingerprint image frames, each captured frame including pixel data representative of a print on the platen surface at a time of capture as the finger is swipe across the platen surface (see figure 1A; sensor shown in figure 3, element 152);

combining said plurality of captured fingerprint image frames into a composite fingerprint image (see figure 1A, the image on the right side is constructed from seven frames of slice finger images), wherein said combining step includes at least partially blending pixel data in successive frames as a function of swipe speed of the finger across the platen surface, where at least partially blending pixel data step includes

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calculating a blending depth that determines a number of pixels to be blended (see figures 5A to 5C, the blend depth is the number of rows and columns overlapped; the blend depth depends on the overlap of each and the overlaps depends on the speed at which the finger is sweep across the sensor plate).

Russo does not disclose step of rolling finger across platen sensor. Martinez discloses step of rolling finger across platen sensor (see figure 1, element 108). One skilled in the art would include step of rolling finger across platen surface because the are more area of the finger are cover when rolling one's finger on the platen surface, which includes more minutia points to increase recognition accuracy.

Russo and Martinez disclose the claimed invention of claim 1.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 6, 8 – 11, 13 – 19, 21 – 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russo (US pat no 7,197,168) in view of Martinez (US pat no 6,483,932).

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With regards to claim 1, Russo discloses a method for capture of a fingerprint image as a finger is sweep across a platen surface, comprises the steps of:

capturing a plurality of fingerprint image frames, each captured frame including pixel data representative of a print on the platen surface at a time of capture as the finger is swipe across the platen surface (see figure 1A; sensor shown in figure 3, element 152);

combining said plurality of captured fingerprint image frames into a composite fingerprint image (see figure 1A, the image on the right side is constructed from seven frames of slice finger images), wherein said combining step includes at least partially blending pixel data in successive frames as a function of swipe speed of the finger across the platen surface, where at least partially blending pixel data step includes calculating a blending depth that determines a number of pixels to be blended (see figures 5A to 5C, the blend depth is the number of rows and columns overlapped; the blend depth depends on the overlap of each and the overlaps depends on the speed at which the finger is sweep across the sensor plate).

Russo does not disclose step of rolling finger across platen sensor. Martinez discloses step of rolling finger across platen sensor (see figure 1, element 108). One skilled in the art would include step of rolling finger across platen surface because the are more area of the finger are cover when rolling one's finger on the platen surface, which includes more minutia points to increase recognition accuracy.

Russo and Martinez disclose the claimed invention of claim 1.

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With regards to claim 2, Russo discloses a method of claim 1, wherein said combining step includes further step of identifying at least one boundary region in a plurality of captured fingerprint image frames and blending pixel data in said boundary (see figure 1A, the image on the right are constructed from the seven fingerprint frames, where the border are the dotted lines).

With regards to claim 3, Russo discloses a method of claim 2, wherein said blending uses a blending function to calculate for said composite fingerprint image a pixel value for a number of pixels in said boundary region, said pixel value based on the values of a plurality of corresponding pixels in said plurality of fingerprint image frames, wherein said number of pixels varies with said swipe speed (see figure 3, element 206, the frames are correlated with each to determine the amount of overlap and the overlap depends on the speed of finger which seep across the sensor). Martinez discloses step of rolling finger across platen sensor (see figure 1, element 108). See the motivation for claim 1.

With regards to claim 4, Russo reads on a method of claim 3, wherein said blending function assigns a variable weight to a corresponding pixel value from an adjacent frame depending on the distance of the pixel from a frame boundary (see column 9, lines 25 to 37, the correlation procedure between a pair of consecutively frames are measure of similarity between the two frame; at each position correlation will be outputted to determine the similarity between the pair of frames and the correlation at a

certain with the highest similarity will be use to combine the pair of frame, the similarity value is read as the variable weight).

With regards to claim 5, Russo discloses a method of claim 3, wherein said blending is applied to determine the value of a majority of pixels in said boundary region (see figure 3, element 206, the correlation determines the boundary of consecutive frames).

With regards to claim 6, Russo discloses a method of claim 1, wherein in said step of capturing a plurality of fingerprint image frames, said frames are captured periodically at equal intervals  $t$  as the finger is sweep across the sensor (see column 9, lines 7 to 14).

With regards to claim 8, see the rationale and rejection for claim 2.

With regards to claim 9, see the rationale and rejection for claim 4.

With regards to claim 10, see the rationale and rejection for claim 5.

With regards to claim 11, see the rationale and rejection for claim 6.

With regards to claim 13, see the rationale and rejection for claim 2.

With regards to claim 14, see the rationale and rejection for claim 1.

With regards to claim 15, see the rationale and rejection for claim 2.

With regards to claim 16, see the rationale and rejection for claim 3.

With regards to claim 17, see the rationale and rejection for claim 4.

With regards to claim 18, see the rationale and rejection for claim 5.

With regards to claim 19, see the rationale and rejection for claim 6.

With regards to claim 21, see the rationale and rejection for claims 1 and 4.

With regards to claims 22 and 23, see the rationale and rejection for claim 4.

With regards to claim 24, see the rationale and rejection for claim 6.

With regards to claim 26, see the rationale and rejection for claim 1.

3. Claims 7, 12, 20 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russo ('168) in view of Martinez ('932) as applied to claim 6 further in view of Upton (US pat no 5,864,296).



With regards to claim 7, Russo and Martinez disclose all of the claim elements / features as discussed above in rejection for claim 1 and incorporated herein by reference and identifying within each fingerprint image frame a subset region containing the fingerprint image (see fig 6, element 606, centroid window of Martinez), but fails to disclose determining roll speed.

Upton discloses determining said roll speed based on the relative change in location of said subset regions between one captured fingerprint image frame selected as a swipe speed reference frame and a fingerprint image frame captured after capture of swipe speed reference frame (see col. 10 lines 33 – 56 – the sensor measures the speed of the fingerprint as it swipes repeatedly through the sensor shown in fig 12 as the velocity waveform).

One skilled in the art would include determining roll speed because the velocity and trajectory of the finger is sweep through the image sensor can be use a mean to further verify any individual who being identify (see Upton col. 10 lines 52 – 56).

With regards to claims 12, 20 and 25, see the rationale and rejection for claim 7.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alex Liew whose telephone number is (571)272-8623.


The examiner can normally be reached on 9:30AM - 7:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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9/14/07

  
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